IN THE CLAIMS:

Please amend the claims to read as follows:

1. (Original) An apparatus for chlorine dioxide generation, the apparatus comprising:

a plurality of metering pumps;

a reaction column having multiple inlet ports; and

a synchronizer controlling the metering pumps to provide synchronized delivery of a plurality of reactant chemicals to the reaction column.

2. (Currently amended) The apparatus of claim 1, the reaction column further configured to have a plurality of tee shaped internal passages[;].

3. (Original) The apparatus of claim 2, wherein the tee shaped passages are configured to introduce a plurality of reactant chemicals capable of forming chlorine dioxide to each other.

4. (Original) The apparatus of claim 3, the tee shaped passages further configured to promote mixing of the reactant chemicals.

5. (Original) The apparatus of claim 4, wherein the tee shaped passages promote mixing of the reactant chemicals by providing at least one head on collision of the reactant chemicals.

6. (Original) The apparatus of claim 5, wherein the tee shaped passages further promote mixing of the reactant chemicals by generating turbulent flow in reactant chemicals by providing abrupt changes in the flow path.

7. (Original) The apparatus of claim 6, wherein the reactant chemicals react in a first and a second reaction.

8. (Original) The apparatus of claim 7, wherein the first reaction involves the reaction of two of the reactant chemicals to form chlorine gas.

9. (Original) The apparatus of claim 8, wherein the second reaction involves the reaction between the chlorine gas and an additional reactant chemical to form chlorine dioxide.

10. (Original) The apparatus of claim 9, wherein the first and second reactions occur under a vacuum created by a carrier fluid flowing through an eductor.

11. (Original) The apparatus of claim 10, wherein the carrier fluid comprises water.

12. (Original) The apparatus of claim 1, wherein the synchronized delivery further comprises a repeat cycle timer to ensure that all the metering pumps pulsations are synchronized to occur at the same time.

13. (Original) An apparatus for chlorine dioxide generation, the apparatus comprising:

a reaction column configured to have multiple inlet ports and a plurality of tee shaped internal passages;

the tee shaped passages configured to introduce a plurality of reactant chemicals to each other; and

the tee shaped passages further configured to promote turbulent mixing of the reactant chemicals.

14. (Original) The apparatus of claim 13, wherein the tee shaped passages promote mixing of the reactant chemicals by providing at least one head on collision of the reactant chemicals.

15. (Original) The apparatus of claim 14, wherein the tee shaped passages further promote mixing of the reactant chemicals by generating turbulent flow in reactant chemicals by providing abrupt changes in the flow path.

16-30. (Cancelled)

31. (New) An apparatus for generating a selected chemical compound from multiple reactants, the apparatus comprising:

a plurality of metering pumps, each metering pump of the plurality of metering pumps being operably connected to deliver a reactant of the multiple reactants to a reaction column;

the reaction column comprising multiple inlet ports to receive the multiple reactants and a first reaction site where selected reactants of the multiple reactants are introduced to one another; and

a synchronizer operably connected to the plurality of metering pumps to control the pulsations of the plurality of metering pumps to provide a synchronized delivery of selected reactants of the multiple reactants to the reaction column.

32. (New) The apparatus of claim 31, the reaction column further comprising:

a first conduit conducting a first reactant of the multiple reactants from a first inlet port of the multiple inlet ports to the first reaction site; and

a second conduit conducting a second reactant of the multiple reactants from a second inlet port of the multiple inlet ports to the first reaction site.

33. (New) The apparatus of claim 32, the reaction column further comprising:

a second reaction site;

a third conduit conducting a third reactant of the multiple reactants from a third inlet port of the multiple inlet ports to the second reaction site; and

a fourth conduit conducting a mixture of the first and second reactants from the first reaction site to the second reaction site.

34. (New) The apparatus as defined in claim 33, wherein the first, second, and third conduits are further configured to promote mixing of the multiple reactants.

35. (New) The apparatus as defined in claim 34, wherein the first and second conduits promote mixing by providing a substantially head-on collision of the first and second reactants at the first reaction site.

36. (New) The apparatus as defined in claim 35, wherein the first and second conduits promote mixing by generating turbulent flow in the first and second reactants through the use of abrupt, substantially right angle changes in the direction of flow.

37. (New) The apparatus as defined in claim 36, wherein selected reactants of the multiple reactant react in a first reaction at the first reaction site and a second reaction at the second reaction site.

38. (New) The apparatus as defined in claim 37, wherein the first reaction combines the first and second reactants to form chlorine gas.

39. (New) The apparatus as defined in claim 38, wherein the second reaction combines the chlorine gas and the third reactant to form chlorine dioxide.

40. (New) The apparatus as defined in claim 39, wherein the first and second reactions occur under a vacuum created by a carrier fluid flowing through an eductor.

41. (New) The apparatus as defined in claim 40, wherein the carrier fluid comprises water.

42. (New) The apparatus as defined in claim 31, wherein the synchronizer comprises a repeat cycle timer.

43. (New) An apparatus for selectively combining multiple reactants to generate a selected chemical compound, the apparatus comprising:

a reaction column having multiple inlet ports, internal conduits, a first reaction site, and a second reaction site;

a first conduit of the internal conduits conducting a first reactant of the multiple reactants from a first inlet port of the multiple inlet ports to the first reaction site;

a second conduit of the internal conduits conducting a second reactant of the multiple reactants from a second inlet port of the multiple inlet ports to the first reaction site;

a third conduit of the internal conduits conducting a third reactant of the multiple reactants from a third inlet port of the multiple inlet ports to the second reaction site;

a fourth conduit of the internal conduits conducting a mixture of the first and second reactants from the first reaction site to the second reaction site; and

the length of the fourth conduit corresponding to the volumetric flow rate of the mixture of the first and second reactants to provide sufficient time for the first and second reactants to substantially completely react before entering the second reaction site.

44. (New) The apparatus as defined in claim 43, wherein the first and second conduits promote mixing of the first and second reactants by providing a substantially head-on collision of the first and second reactants at the first reaction site.

45. (New) The apparatus as defined in claim 44, wherein the first and second conduits further promote mixing of the first and second reactants by generating turbulent flow through the use of abrupt, substantially right angle changes in the direction of flow.